CLAIMS

Amend the claims as follows.

1.   (Cancelled)

2.   (Previously Presented) The apparatus of claim 4 wherein determining the temperature stress adjustment factor further includes determining a difference of a first reciprocal of the expected operating temperature and a second reciprocal of the actual operating temperature.

3.   (Previously Presented) The apparatus of claim 2 wherein the processors are further operable to determine the temperature stress adjustment factor by calculating a second mathematical product of the difference and a second quotient of a predetermined thermal activation energy for the monitored device and Boltzmann's constant.

4.   (Previously Presented) An apparatus comprising:
    one or more processors; and
    a memory coupled to the processors comprising instructions executable by the processors, the processors operable when executing the instructions to:
    identify an inputted reference failure rate for a monitored device, the inputted reference failure rate being a first quotient of an amount of failures associated with a population of the monitored device and an amount of time, the inputted reference failure rate associated with an expected operating temperature for the monitored device and an expected communication capacity utilization for the device;
    communicate with the monitored device while the monitored device is in field operation for determining an actual operating temperature for the monitored device and an actual communication capacity utilization;
    determine a temperature stress adjustment factor using the expected operating temperature and the actual operating temperature;

determine an electrical stress adjustment factor using the expected communication capacity utilization and the actual communication capacity utilization, wherein the processors are further operable to determine the electrical stress adjustment factor by calculating a difference of the expected communication capacity utilization and the actual communication capacity utilization; and

output an instantaneous failure rate that is a first mathematical product of the inputted reference failure rate, the temperature stress adjustment factor and the electrical stress adjustment factor.

5.   (Previously Presented) The apparatus of claim 4 wherein the processors are further operable to determine the electrical stress adjustment factor by calculating a second mathematical product of the difference and a predetermined electrical stress characteristic of the monitored device.

6.   (Currently Amended) The apparatus of claim 4 wherein the apparatus is integrated with a router and the monitored device is a communication component located in the router.

7.   (Previously Presented) The apparatus of claim 4 wherein the instantaneous failure rate for the monitored device is outputted to a display device.

8.   (Previously Presented) The apparatus of claim 6 wherein the outputted instantaneous failure rate corresponds to the communication component.

9.   (Previously Presented) The apparatus of claim 8 wherein the processors are further operable to use the instantaneous failure rate for the communication component to determine an instantaneous failure rate for the router.

10.   (Previously Presented) The apparatus of claim 4 wherein the processors are further operable to:

check the integrity of non volatile memory used to store the inputted reference failure rate, the expected operating temperature and the expected communication capacity utilization;

initialize random access memory (RAM) with previously stored values;

define a reliability sampling period or interval; and

start background tasks.

11.   (Previously Presented) The apparatus of claim 4 wherein the monitored device is located remotely with respect to the apparatus and the apparatus is operable to communicate with the monitored device over a network.

12.   (Previously Presented) The apparatus of claim 4 wherein the processors are further operable to communicate with a traffic byte counter coupled to the monitored device to determine the actual communication capacity utilization.

13.   (Previously Presented) The apparatus of claim 4 wherein the processors are further operable to determine a cumulative reliability indication value by summing the instantaneous failure rate with other instantaneous failure rates for the monitored device that are determined by the apparatus periodically according to a predefined period.

14.   (Currently Amended) A system comprising:

means for inputting a first predetermined Mean Time Between Failures (MTBF) for a monitored device, the first predetermined MTBF based on expected environmental conditions and expected usage parameters for the device;

means for measuring actual temperature while the device is being operated in the field;

means for measuring actual communication capacity utilization of the device while the device is being operated in the field;

means for identifying actual electrical stress on the monitored device by comparing the actual communication capacity utilization to <u>an</u> [[a]] expected communication capacity utilization;

means for determining a second field-adjusted MTBF for the monitored device, the second field-adjusted MTBF determined by adjusting the first predetermined MTBF according to both a first factor representing a difference between the field-measured actual temperature and an expected operating temperature and a second factor representing a difference between the identified electrical stress and expected electrical stress for the device, the second field-adjusted MTBF being different than the first predetermined MTBF; and

means for outputting the second field-adjusted <u>MTBF</u> ~~Mean Time Between Failures (MTBF)~~.

15.   (Previously Presented) The system of Claim 14 wherein the measurements of the actual temperature and the actual communication capacity utilization are initiated automatically after passage of a predefined time interval.

16.   (Previously Presented) The system of Claim 15 wherein the measurements are taken over a predefined duration.

17.   (Previously Presented) The system of Claim 14 further comprising:

means for determining an instantaneous failure rate by adjusting a reference failure rate for the device according to measurements;

means for automatically re-determining the instantaneous failure rate after passage of a predefined time interval; and

means for identifying a cumulative reliability indication value for the monitored device by summing the initial instantaneous failure rate and the re-determined instantaneous failure rate.

18.   (Previously Presented) The system of Claim 14 wherein the expected environmental conditions include expected operating humidity and expected operating ambient temperature.

19.   (Previously Presented) The system of Claim 14 wherein the expected usage parameters are based on an expected amount of power cycles applied to the monitored device.

20.   (Previously Presented) The system of Claim 14 wherein the expected temperature is an expected operating temperature.

21.   (Previously Presented) The system of Claim 14 wherein the expected temperature is an expected ambient temperature.

22.   (Currently Amended) A computer readable medium with instructions embedded therein for causing a processor to implement a reliability determination process including:

an initialization module for directing implementation of an initialization process;

a determination process and a field condition reliability analysis process for determining one or more operational parameters of a component, the operational parameters determined at least in part by calculating an electrical stress adjustment factor that represents a difference between an expected communication capacity utilization for the component and an actual communication capacity utilization that is based on an output of a traffic byte counter corresponding to the component;

a reliability determination runtime module for interfacing with an operating system to calculate one or more field-adjusted Mean Time Between Failures (MTBFs) by adjusting a reference MTBF for the component using the operational parameters and to calculate one or more cumulative reliability index values based on the field-adjusted MTBFs; and

an output module for causing the calculated cumulative reliability index values to be displayed to a user.

23.   (Currently Amended) The [[A]] computer readable medium of Claim 22 wherein said initialization module includes instructions for:
    checking the integrity of non volatile memory;
    initializing random access memory (RAM) with previously stored values;
    defining a reliability sampling period or interval; and
    a background module for starting background tasks.

24.   (Currently Amended) The [[A]] computer readable medium of Claim 23 wherein said background module includes instructions for implementing reliability associated firmware activities.

25.   (Currently Amended) The [[A]] computer readable medium of Claim 23 wherein said background module divides the background tasks into multiple background threads that operate separately.

26.   (Cancelled)

27.   (Currently Amended) A method comprising:
    identifying a reference failure rate for a device, the reference failure rate usable for calculating a time between failures statistic associated with the device and based on expected operating parameters for the device;
    measuring actual operating parameters for the device while the device is operated for non-testing purposes in a field environment for the device, the actual operating parameters including a measured actual communication capacity utilization for the device;

determining an electrical stress adjustment factor according to a comparison of the actual communication capacity utilization to an expected communication capacity utilization for the device;

determining a custom failure rate by adjusting the reference failure rate based at least in part on the determined electrical stress adjustment factor;

outputting a signal for displaying the custom failure rate; and

outputting a field-adjusted Mean Time Between Failures (MTBF) for the device that is determined by adjusting a predetermined MTBF for the device using the actual operating parameters that are measured while the device is operated for the non-testing purposes in the field environment.

28.   (Previously Presented) The method of claim 27 wherein the measured operating parameters are transferred over a network for remote analysis.

29.   (Previously Presented) The method of claim 27 wherein the device is a communication component located in a router.

30.   (Previously Presented) The method of claim 27 wherein the custom failure rate is an instantaneous failure rate for the device measured at a first time and the custom failure rate is summed with other instantaneous failure rates for the device that are measured at second other times to generate a cumulative reliability indication.

31.   (Currently Amended) The apparatus of claim 4 wherein the processors are further operable to output a field-adjusted Mean Time Between Failures (MTBF) for the monitored device that is determined by adjusting a predetermined MTBF for the monitored device using the actual operating parameters that are measured while the monitored device is used for non-testing purposes in a [[the]] field environment.

32-33. (Cancelled)

34. (Currently Amended) The method of claim 27 wherein measuring actual operating parameters includes monitoring the actual [[a]] communication capacity utilization for the device.

35. (Cancelled)

36. (Previously Presented) The apparatus of claim 4 wherein the outputted instantaneous failure rate is associated with a Mean Time Between Failures (MTBF) for the monitored device.